

BN13

Standardized Articles JPI

Pressure Gauges

Overview

This pressure gauge is designed in accordance with JPI standard. The standard specifies bourdon tube pressure gauge specification and performance to suit for Petroleum industry (including Petroleum refining, Petrochemical and natural gas industry).

Features

- Highly durable
Vibration 25Hz 0.75G for 200 hours within $\pm 1.0\%$ F.S.

*To maximize performance, select full scale pressure range to indicate normal operating pressure which comes to conditions below.

For constant pressure : The maximum operating pressure should not exceed three-quarters of the full-scale range.

For fluctuating pressure: The maximum operating pressure should not exceed two-thirds of the full-scale range.

Select appropriate wetted parts compatible with process fluid (gas and liquid) which the gauge will be subjected.

Please refer to JIS B 7505-1 for details.

*Bourdon tube pressure gauge designed for the JPI standard (JPI-7S-50-96) is discontinued since July 2015.



Specifications 1


Media:

Gases, liquids

Size:

ϕ 100

Type:

Stem ·····  A type (without flange) sealed type

Connection:

R1/2, G1/2B

Wetted parts:

Bourdon tube SUS316
Socket SCS14

Pressure range:

0 to 0.1 → 0 to 25MPa
-0.1 to 0 → -0.1 to 2.5MPa

Accuracy:

$\pm 1.0\%$ F.S.

Window:

Inorganic window

Blowout disc:

Blowout disc is used to protect window being blown up in case of high pressure leak happen from the failure of bourdon tube. The disc breaks and releases inner over pressure.

Caution To maintain appropriate performance, space wider than 10mm against wall behind installing gauge is needed. Modification toward disk and plug, blocking out the disk are prohibited.

Color of printed dial:

Positive pressure Black, Vacuum pressure Red

Case material · finish:

ADC12 · Black

Treatment: (Option)

Use no oil and water ····· Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.

Throttle: (Option)

Throttle that fits inside orifice of pressure gauge is used for reducing pressure impact if the gauge is subjected to pulsation. Model number: FS10-013

Customized dial: (Option)

Characters, circled dial

Weight:

Approx. 0.8kg

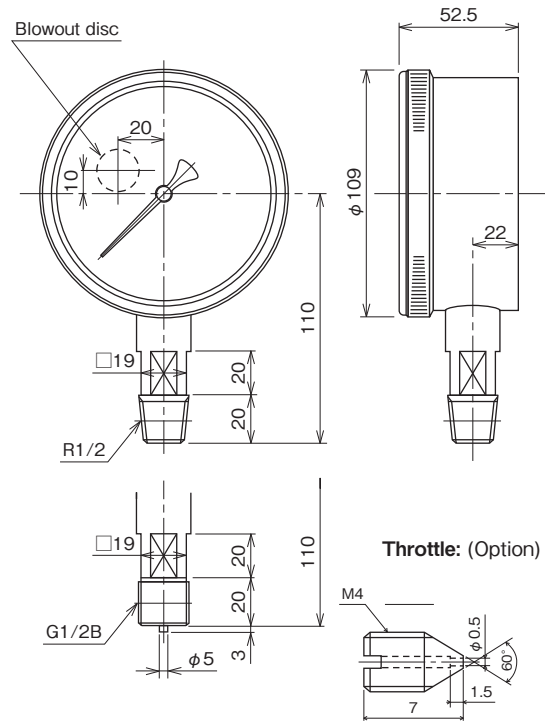
Specifications 2

Pressure range MPa	Minimum scale MPa	Number of graduation
0 to 0.1	0.002	50
0 to 0.25	0.005	50
0 to 0.4	0.01	40
0 to 0.6	0.01	60
0 to 1	0.02	50
0 to 1.6	0.05	32
0 to 2.5	0.05	50
0 to 4	0.1	40
0 to 6	0.1	60
0 to 10	0.2	50
0 to 16	0.5	32
0 to 25	0.5	50

Pressure range MPa	Minimum scale MPa	Number of graduation
-0.1 to 0	0.002	50
-0.1 to 0.1	0.005	40
-0.1 to 0.25	0.01	35
-0.1 to 0.4	0.01	50
-0.1 to 0.6	0.02	35
-0.1 to 1	0.02	55
-0.1 to 1.6	0.05	34
-0.1 to 2.5	0.05	52

Dimensions

Unit: mm



Corrosion resistant type FS10-013
Material: SUS316

Features and test

Pressure gauge designed for JPI standard owns the ability to pass the test items below.

No.	Test items	Test method and performance
1	Indication test	After observing pressure values at 0, 25, 50, 75, 100% during upscale pressurization from 0 to 100% followed by downscale depressurization to 0%, the values should meet following conditions: a) Allowable deviation: $\pm 1.0\%$ of measuring range b) Maximum deviation (Absolute value) should be within 1% of rated pressure.
2	Static pressure test	Indication value should be observed after pressurizing 90 to 100% of maximum pressure continuously for 6 hours followed higher pressurization than maximum pressure (maximum pressure x 1.1) for 15 minutes. Indication test should be conducted after 1 hour interval.
3	Heat resistance test	Indication test should be passed under decreased ambient temperature in the tank without damage in pressure gauge function such as change in dial color, deformation or leak of process media after pressurization of two-thirds of maximum pressure value maintaining 100°C followed by 30 minutes interval.
4	Temperature test	Indication test should be passed after pressurization of two-thirds of maximum pressure value maintaining 60°C in tank followed by 30 minutes interval.
5	Vibration resistance test	Under ambient temperature, maintaining one-half of maximum pressure during 1500 times /minute of upper and lower and harmonic motion for 200 hours, following indication test should be passed without damage in performance like loosen screw/pin, tangled hairspring. Amplitude of vibration must be within less than three times of maximum deviation (absolute value).
	a) Vibration test against product b) Abrasion test against internal mechanical parts	After removing inner mechanical movement (including pointer, rod pin and all the link mechanism), after intentional $\pm 30^\circ$ amplitude of vibration and 1000 times /minute reciprocating motion against rod pin for 16 hours, the increase of pointer angle "play" should be less than 5°.
6	Enclosure test	Installed pressure gauge should withstand 30kPa pressure xxx (same as 2.5m height level pressure) exposed from every 3m directions with 6.3mm nozzle for 3 minutes, with no water ingress should be observed even discharging 12.5ℓ/minute of water discharge against 1m ² around pressure gauge face for 1 minute.

* Bourdon tube pressure gauge designed for the JPI standard (JPI-7S-50-96) is discontinued since July 2015.

Model number configuration

Please specify the model number, each specs and the range for ordering.

Model
B N 1 3 — **4** **3** — **3 1 0** — — — — × × × × —

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Model number		Product specifications	Additional specifications (Optional)
① Type	4	Stem: A type (without flange) sealed type	
② Connection	4	G1/2B	
	9	R1/2	
③ Wetted parts	3	Bourdon tube: SUS316 Socket : SCS14	
④ Pressure range (MPa)	2	-0.1 to 0.1, 0.25, 0.4, 0.6, 1, 1.6, 2.5 Compound range	
	3	-0.1 to 0, 0 to 0.1, 0.25, 0.4, 0.6, 1, 1.6, 2.5	
	4	0 to 4, 6, 10	
	5	0 to 16, 25	
⑤ Accuracy	3	Standard ($\pm 1.0\%$ F.S.)	
⑥ Pointer	1	Zero adjustable (Spring type)	
⑦ Window	0	Standard (Inorganic window)	
		Others	
⑧ Treatment	0	Not required	
	1	Use no oil	
	2	Use no water	
	3	Use no oil & water	
⑨ Throttle	0	Not required	
	1	FS10-013 (Corrosion resistant type)	
⑩ Other additional spec.	0	Not required	
	1	Required (Specify required additional spec.) Customized dial [Note 1]	
⑮ Documents	0	Not required	
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Mill test report Calibration test report (One-part one sheet) Inspection / Traceability certificate Attending inspection	

Please specify pressure range and unit of measure along with corresponding ordering code.

[Scope of manufacturing]

[Note 1] Customized dial: Characters, circled dial

* Specify code "X" to refer N/A